	Application No.	Applicant(s)
Notice of Allowability	09/670,761	FARMER ET AL.
	Examiner	Art Unit
	Adam L Basehoar	2178

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *11/08/04*.

2. ☒ The allowed claim(s) is/are *1,3,4,6-10,12,13,15-19,21,22,25-29,31-42, 45-48, and 50-53*.

3. ☒ The drawings filed on *27 September 2000* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some*   c)☐ None of the:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a)☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

      1)☐ hereto or 2)☐ to Paper No./Mail Date _____.

    (b)☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

    Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____.

REASONS FOR ALLOWANCE AND EXAMINER'S AMENDMENT

1.   This action is responsive to communications: The Amendment filed 11/08/04.

2.   Claims 2, 5, 11, 14, 20, 23-24, 30, 49, and 54-58 have been cancelled as necessitated by Amendment.

3.   The Rejection of claims 1-44 and 55-58 under 35 U.S.C. 102(e) as being anticipated by Truelson (US: 6,223,191 04/24/01) has been withdrawn as necessitated by the Amendment.

4.   The Rejection of claims 45-48 and 50-53 under 35 U.S.C. 102(a) as being anticipated by Microsoft's, "Microsoft Word 2000," 1999, pp. 1-7. has been withdrawn as necessitated by the Amendment.

5.   The Rejection of claims 49 and 54 under 35 U.S.C. 103(a) as being unpatentable over Microsoft's, "Microsoft Word 2000," 1999, pp. 1-7 in view of Truelson (US: 6,223,191 04/24/01) have been withdrawn as necessitated by the Amendment.

6.   Claims 43 and 44 have been cancelled by the Examiner's Amendment.

7.   The Specification has been amended by the examiner, which is discussed below in the Examiner's Amendment section.

8.   Claims 1, 3-4, 6-10, 12-13, 15-19, 21-22, 25-29, 31-42, 45-48, and 50-53 are allowed as necessitated by the Appeal Brief and discussed below in the Reasons for Allowance section.

EXAMINER'S AMENDMENT

9.   An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR

1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the

payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with

Attorney Hans Troesch on 03/30/05.

The Application has been amended as follows:

Replace the Abstract with the following [Wherein the strikethrough text is removed]

A technique for automated paragraph layout identifies possible lines within a

paragraph in a top-down pass through the paragraph, selects a combination of the possible lines

in a bottom-up pass through the paragraph, and specifies a layout for the paragraph within a page

according to the selected combination. ~~The technique is capable of producing paragraph layouts~~

~~within complex shapes with high-speed and moderate use of computing resources.~~

Claim 1 (Currently Amended)

[[A]] An automated paragraph layout method comprising:

identifying a subset of possible lines within a paragraph in a top-down pass from the

beginning to the end of the paragraph;

calculating for each of the possible lines a respective line-specific penalty, the line-

specific penalty for each line being calculated without reference to any penalty calculated for any

other line;

calculating a bottom-up accrued penalty for each of the possible lines in the subset of

possible lines in a bottom-up pass from the end to the beginning of the paragraph, each bottom-

up accrued penalty for a particular line being calculated form the line-specific penalties of the

particular line and all the lines in an optimal sequence of lines from the particular line to the end

of the paragraph, each bottom-up accrued penalty being calculated without reference to any

penalty for any preceding line in the paragraph;

selecting a combination of the possible lines based on the bottom-up accrued penalties of

the possible lines; and

specifying a layout for the paragraph according to the selected combination.

Claim 29 (Currently Amended)

[[A]] An automated paragraph layout method comprising:

identifying a subset of possible lines within a paragraph in a top-down pass through the

paragraph, each of the possible lines yielding a downward sequence of additional possible lines;

calculating, in the top-down pass, a line-specific penalty for each of the possible lines, the

line-specific penalty for each line being calculated without reference to any penalty calculated

for any other line;

calculating top-down accrued penalties over each of the downward sequences of the

possible lines in the top-down pass, each top-down accrued penalty for a particular line in a

given sequence of lines being calculated from the line-specific penalties of the particular line and

all lines in the given sequence of lines from the beginning of the paragraph to the particular line;

excluding from the subset of possible lines the possible lines and associated sequences of

possible lines for which the top-down accrued penalty does not satisfy a benchmark penalty;

selecting a combination of possible lines remaining in the subset of possible lines in a

bottom-up pass through the possible lines based on bottom-up accrued penalties accrued over

upward sequences of the possible lines, each bottom-up accrued penalty for a particular line

being calculated from the line-specific penalties of the particular line and all lines in an optimal

sequence of lines from the particular line to the end of the paragraph, each bottom-up accrued

penalty being calculated without reference to any penalty for any preceding line in the paragraph;

and

specifying a layout for the paragraph according to the selected combination.

Claim 41 (Currently Amended)

[[A]] An automated paragraph layout method comprising:

defining a paragraph cell for layout of a paragraph, the paragraph cell including a

sequence of baselines for placement of lines of text information, wherein at least some of the

baselines have different widths;

identifying a subset of possible lines within the paragraph in a top-down pass through the

paragraph, each of the possible lines being characterized by a line-start and yielding a downward

sequence of additional possible lines at the baselines within the paragraph;

calculating, in the top-down pass, a line-specific penalty for each of the possible lines, the

line specific penalty for each line being calculated without reference to any penalty calculated for

any other line;

calculating top-down accrued penalties over each of the downward sequences of the

possible lines in the top-down pass through the paragraph, each top-down accrued penalty for a

particular line in a given sequence of lines being calculated from the line-specific penalties of the particular line and all lines in the given sequence of lines from the beginning of the paragraph to the particular line;

excluding from the subset of possible lines the possible lines and associated downward sequences of possible lines for which the top-down accrued penalty does not satisfy a benchmark penalty;

selecting a combination of possible lines remaining in the subset of possible lines in a bottom-up pass through the possible lines based on bottom-up accrued penalties accrued over upward sequences of the possible line, each bottom-up accrued penalty for a particular line being calculated from the line-specific penalties of the particular line and all lines in an optimal sequence of lines from the particular line to the end of the paragraph, each bottom-up accrued penalty being calculated without reference to any penalty for any preceding line in the paragraph; and

specifying a layout for the paragraph according to the selected combination

Claim 43 (Cancelled)

Claim 44 (Cancelled)

Claim 45 (Currently Amended)

[[A]] An automated paragraph layout method comprising:

defining a paragraph layout for a paragraph of text, including:

identifying a subset of possible lines within a paragraph in a top-down pass from the beginning to the end of the paragraph;

calculating for each of the possible lines a respective line-specific penalty, the line-specific penalty for each line being calculated without reference to any penalty calculated for any other line;

calculating a bottom-up accrued penalty for each of the possible lines in the subset of possible lines in a bottom-up pass from the end to the beginning of the paragraph, each bottom-up accrued penalty for a particular line being calculating from the line-specific penalties of the particular line and all lines in an optimal sequence of lines from the particular line to the end of the paragraph, each bottom-up accrued penalty being calculated without reference to any penalty for any preceding line in the paragraph;

selecting a combination of the possible lines based on the bottom-up accrued penalties of the possible lines; and

specifying a layout for the paragraph according to the selected combination:

detecting a change to the paragraph of text, wherein the change includes at least one of a change to the text and a change to a paragraph cell in which the text was positioned; and

redefining the paragraph layout in real time in response to the detected change, including:

recalculating line-specific penalties only for lines that change as a result of the change to the paragraph of text;

calculating a bottom-up accrued penalty for each of the possible lines in the subset of possible lines in a bottom-up pass from the end to the beginning of the paragraph, each bottom-up accrued penalty for a particular line being calculated form the line-specific penalties

of the particular line and all the lines in an optimal sequence of lines from the particular line to

the end of the paragraph, each bottom-up accrued penalty being calculated without reference to

any penalty for any preceding line in the paragraph;

     selecting a combination of the possible lines based on the bottom-up accrued

penalties of the possible lines; and

     specifying a layout for the paragraph according to the selected combination.

REASONS FOR ALLOWANCE

10.   The following is an examiner's statement of reasons for allowance:

     Regarding independent claim 1, none of the references, either singularly or in

combination, teach or suggest to a person of ordinary skill in the art at the time of the invention

the amended features of, *calculating a bottom-up accrued penalty for each of the possible lines*

without reference to any penalty of any preceding line in the paragraph and wherein the penalty

for each line was calculated without reference to any penalty calculated for any other line, in

combination with the other presented claim limitations (i.e. initial top-down pass through the

paragraph, bottom-up accrued penalty for a particular line being calculated from the line-specific

penalties of the particular line and all lines in an *optimal sequence* of lines, etc). The examiner

notes that while determining an automated optimal paragraph layout based on accrued calculated

line penalties is not considered a novel feature (See Examiner Referenced Prior Art and

Background of Applicant's Specification), but in light of the combination of the features of the

method steps of the independent claim, the limitations of claim 1 are considered novel, and

unobvious to a person of ordinary skill in the art at the time the invention was made in view of the prior art of record.

Independent claims 10, 19, 29, 33, 37, 41-42, and 50 recite limitations corresponding to that of independent claim 1 detailed above and are thus considered novel at least for said listed reasons.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Relevant Prior Art:

The cited reference, Truelson (US: 6,223,191 04/24/01), appears to be the most relevant prior art of record describing an automated paragraph layout system. The reference teaches a top-down pass of an entire paragraph that generates multiple permutations of possible lines, wherein each line permutation was assigned a weighted value which was calculated utilizing the accrued weighted value of the preceding lines in that specific permutation. The reference then teaches a bottom-up pass selecting specific lines linked in the lowest evaluated paragraph permutation. However the reference does not teach or suggest individually calculating line specific penalties for all possible lines without reference to any line calculated for any other line. Additionally, Truelson was deficient in teaching wherein the accrued line penalties were calculated without reference to any penalty for any preceding line in the paragraph wherein the *optimal sequence* of lines was already determined to calculate the accrued penalty as claimed in the independent claim.

Conclusion

11.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure:

US-6,766,495	07-2004	Bates et al.
US-5,625,773	04-1997	Bespalko et al.

12.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Adam L Basehoar whose telephone number is (571)-272-4121.

The examiner can normally be reached on M-F: 7:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Steve Hong can be reached on (571) 272-4124. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ALB

STEPHEN HONG
SUPERVISORY PATENT EXAMINER